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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/495,407	01/31/2000	Keith Stivers	OSI-2300/2310	4823

7590 08/05/2005

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EXAMINER

MOSSER, ROBERT E

ART UNIT	PAPER NUMBER
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3714

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/495,407

Applicant(s)

STIVERS ET AL.

Examiner

Robert Mosser

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10-8-2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28,33-51,53,54,56-60,62,64,65,67,68,77-84,86-88 and 90-96 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28,33-51,53,54,56-60,62,64,65,67,68,77-84,86-88 and 90-96 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/08/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Claims 1-28, 33-51, 53, 54, 56-60, 62, 64, 65, 67, 68, 77-84, 86-88, 90-96 are pending.

The 1449 Submitted 10/08/2004 has been considered and attached for the applicant's records.

This Action is Final.



Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims **1-11, 33, 57-60, 65, 67-68** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gobush et al (US 5,803,823) in view of Gobush et al (US 6,241,622) in further view of Sullivan (4,158,853), in yet further view of Bouton (US 5,472,205).

Gobush (5,803,823) teaches an apparatus for monitoring the swing path of a golf club close to impact with a ball including an impact location for receiving the ball (Fig 4 & 5) and a first sensor (6) proximate to the impact location;

Though stating that the features directed to the tracking and calculation of golf ball behavior are old and well known Gobush does not teach the specific tracking of the

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ball parameters or the incorporation planer sensor array. However, Gobush does teach the tracking of ball related parameters in a related patent document (US 6,241,622).

Gobush (6,241,622) teaches an image capture device including a camera (36, 38) for capturing two or more images of the golf ball after impact with the golf club head (Fig 4 & 5); and a processor for receiving signals indicative of a temporal profile and three dimensional velocity of the golf ball by extrapolating perimeters of two or more images taken using the camera, and by determining three-dimensional spatial positions of the ball in said images and calculating the three-dimensional velocity of said golf ball based on said three-dimensional spatial positions (Abstract, Col 8:39-42, Col 10:10-17, Col 13:45-50). Extrapolations based on orientation and flight behavior are well encompassed in the 34 equations contained within the 6,241,622 reference that encompass elements from Cartesian position, formulas relation velocity to time, ball spin direction to time or position and a variety of other extrapolations based off of the initial ball impact event. Further evidence of Gobush's extrapolation maybe found in Column 14 lines 23 through 41 wherein he refers directly to the process of "interpolation" which is inherently a type of extrapolation and defined as such through mathematical inverse. Likewise linear extrapolation is a subset of extrapolation as linear interpolation is a subset of interpolation. The later of which is demonstrated by Gobush starting with column 12 lines 56 through column 13 line 36 where the system solves a set of four linear equations in order to derive ball behavior.

Further the language "consisting essentially of a single camera" fails to limit the use of multiple cameras however for the purpose of furthering prosecution Sullivan et al

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(US 4,158,853) teaches the use of a single camera in figure 2 for the capture of post impact ball flight characteristics.

It would have been obvious to one of ordinary skill in the art at the time of invention to have incorporate the ball tracking system as taught by Gobush (6,241,622) with the club tracking as taught by Gobush (5,803,823) with further the single camera golf ball post impact data capture system/method of Sullivan (4,158,853) in order provide a calculation verification means and better analyze the effect of the swing on true ball flight behavior while reducing system manufacture cost through the use one verses multiple cameras.

In related application Bouton teaches a first array of sensors proximate to the impact location and a second array of sensors spaced apart from the first array behind the impact position along swing path, the first and second array positioned such that a golf club swung in preparation for contact with a golf ball at the impact location will have a swing plane in angular relation to the first and second arrays (Fig 8, 9). Claim language found in at least claims **2-6** is interpreted as further describing the sensor array as presented in figure 8 with claimed variants of functionality found in figures 5 and 13.

Bouton further teaches a processor for receiving signals indicative of a temporal profile of which sensors the golf club head is over during the swing and for determining at least one of swing path and a club head angle of the golf club based on said signals indicative of the temporal profile (Fig 5, 8,9).

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It is the examiner's interpretation that any temporal elements not directly stated in the reference of Bouton are encompassed in Bouton's calculation of ball velocity which in turn would require the measurement of time in association with distance to calculate. Further this sensor matrix would serve as so set forth to accurately determine the position of the club both on it's approach and departure serving as ideal trigger means for the image system of Bouton described above.

It would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated the sensor array of Bouton in the invention of Gobush/Gobush in order to provide detailed shutter timings for the camera trigger and an additional calibration method for the device of Gobush/Gobush/Sullivan

Claims **12-28, 34-51, 53-54, 56, 62, 64, 77-84, 86-88, and 90-96** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gobush et al (US 5,803,823) in view of Gobush et al (US 6,241,622) in further view of Sullivan (4,158,853) in yet further view of Bouton (US 5,472,205) in yet further view of Mook (US 5,067,719).

Regarding at least claims **12-28, 34-51, 53-54, 56, 62, 64, 77-88, and 90-96** and in addition to the above stated. The invention of Gobush/Gobush/Sullivan/Bouton teaches the use of dots for the automatic extrapolation of spin, determination of ball perimeter, but is silent regarding the use of stripes or a stripe rather than dots as a visual reference tool.

In a related application Mook teaches the use of circumambulatory stripe(s) around a golf ball for a visual indication of ball spin (Abs 7 Fig 1-5). It would have been

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obvious to use the stripes of Mook as reference indices in the invention of Gobush/Gobush/Sullivan/Bouton in order to provide an index which could not be obstructed through the presence of finite amount of dirt on the ball surface.

With the replacement of the dot system of Gobush as taught above with the stripe(s) system of Mook, features that were previously measured by the dots would be so equivalently measured by the stripe(s). For example in claim **49** the curvature of the stripe would be inherently the function of ball orientation/surface features and as the stripe(s) of Mook are taught in the claimed manner any stripes would be visible from a fixed view during the swing. As such the stripe would serve the same function and purpose as the described stripe laid forth in the invention of Gobush/Gobush//Sullivan/Bouton/Mook.

Claims **12-28, 34-51, 53-54, 56, 62, 64, 77-84, 86-88, and 90-96** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gobush et al (US 5,803,823) in view of Gobush et al (US 6,241,622) in further view of Sullivan (4,158,853) in yet further view of Bouton (US 5,472,205) in yet further view of Katayama (US 6,042,483).

Regarding at least claims **12-28, 34-51, 53-54, 56, 62, 64, 77-88, and 90-96** and in addition to the above stated. The invention of Gobush/Gobush/Sullivan/Bouton teaches the use of dots for the automatic extrapolation of spin, determination of ball perimeter, but is silent regarding the use of stripes or a stripe rather than dots as a visual reference tool.

In a related application Katayama teaches the use of circumambulatory stripe(s) around a golf ball for a visual indication of ball spin in association with a computer flight monitoring system (Fig 4-5 & Col 4:14-41). It would have been obvious to use the stripes of Katayama as reference indices in the invention of Gobush/Gobush/Sullivan/Bouton/Katayama in order to provide an index which could not be obstructed through the presence of finite amount of dirt on the ball surface.

With the replacement of the dot system of Gobush as taught above with the stripe(s) system of Katayama, features that where previously measured by the dots would be so equivalently measured by the stripe(s). For example in claim 49 the curvature of the stripe would be inherently the function of ball orientation/shape and as the stripe(s) of Katayama are taught in the claimed manner any stripes would be visible from a fixed view during the swing. As such the stripe would serve the same function and purpose as the described stripe laid forth in the invention of Gobush/Gobush/Sullivan/Bouton/Katayama.

Response to Arguments

Applicant's arguments filed October 8th, 2004 have been fully considered but they are not persuasive.

With regards to the arguments presented by applicant and starting on page 18 of their instant response the applicant expresses confusion over Gobush (USP 6,241,622) teachings with regard to the "extrapolation perimeters" of a golf ball. The applicant cites

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the examiner's statement of "described variants of these extrapolations ... are believed to be well encompassed in the 34 equations" and is followed by "contained with in the 6,241,622 reference that encompass elements from Cartesian position, formulas relation velocity to time, ball spin direction to time or position and a variety of other extrapolations based off of the initial ball impact event", omitted by applicant. The examiner would first like to apologize for any confusion presented in the body of the original rejection and has amended the above rejection in hopes of avoiding any further misunderstandings and reassert the application of Gobush (USP 6,241,622) for it's teaching of claimed features and demonstrated in the rejection above. Second the examiner has reviewed the applicant's disclosure as originally filled to determine the exact process of their claimed "extrapolation" by mathematical or verbal definition and has found no enabling disclosure to support any special or unique definition that might serve to separate the applicant's claimed process from that of the prior art. Third the Gobush reference (USP 6,241,622) describes the utilized process as "interpolation" (Col 14:26-29). Extrapolation is a type of Interpolation related to each other through inverse definition, this is further supported by the "extrapolation" definition provided herewith (www.answers.com/extrapolation). Remaining assertions by applicant regarding this issue are moot in view of the lack of any supporting disclosure or evidence to the contrary beyond mere allegation.

Applicant is reminded that the examiner is only reasonable for clearly pointing out those features in a cited reference, which would not be immediately obvious to one of ordinary skill in the art (MPEP 707, 37 CFR 1.104(c) (2)). As the applicant attempts to assert

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that their method/system is in some way “different” than that of the prior art without providing a single example of such perceived separation, the applicant’s assertion of the examiner’s “vague and noninformatative assertions” (bottom page 19 of response) are absent any factual support. Again the examiner apologizes for his part in this misunderstanding and hopes that the provided additional definitions aid resolving this issue for the applicant

Applicant’s argue that the use of a single camera as now incorporated into claims 34 and 86 serves as a non-obvious modification of the prior art and that the applied references could not perform the functions of determining the three-dimensional velocity by “extrapolating parameters” of the golf ball in post impact images. Applicant is first directed to (US 4,158,853) wherein co-inventor William Gobush of the previously applied references (US 5,803,823 & US 6,241,622) discloses specifically the use of one camera for the determination of ball velocity and spin in the immediate post-launch time period. Gobush refers to this determination as being accomplished through the use of external computing circuits for calculating the three-dimensional velocity and spin characteristics based on series of snap shots wherein the position of the visual indicia is tracked via a Cartesian coordinate system, time, and known geometric relationships. (See US 4,158,853 Figure 2, Col 3:16-45 & Col 3:47-50). As so set forth the applicant’s three-dimension velocity, three-dimensional position, and spin (including a side spin or back spin) are well encompassed by this yet earlier reference (US 4,158,853).

The applicant has recognized the above prior art (4,158,853) previously of record and alleges that this feature though taught by Sullivan and co-inventor Gobush, would have been non-obvious to Gobush some 21 years later. The respective age of a reference beyond the criteria set forth defining prior art in USC 102 bares no weight in the determination of novelty or non-obviousness.

Further the applicant's argument based upon the age of the references, contentions that the reference patents are old are not impressive absent a showing that the art tried and failed to solve the same problem notwithstanding its presumed knowledge of the references. See *In re Wright*, 569 F.2d 1124, 193 USPQ 332 (CCPA 1977).

The arguments stating, "the golf industry has long sought a workable single camera ball flight monitoring system" (Remarks page 20, 2nd paragraph) is mere allegation and not supported by any evidence of record. As stated in the preceding paragraph, applicant's argues that Sullivan fails to provide an enabling disclosure to the "single camera" embodiment, however in view of the above the applicant has failed to demonstrate any evidence beyond allegation to demonstrate a deficiency.

The applicant is cautioned regarding their attack on the examiner as presented in the third full paragraph of page 21 of this response including "*the examiner asserts that the Mook reference supplies this deficiency, namely, a golf ball with colored circumambulatory stripe(s) used in a related application*" (Office Action, p. 5) Not surprisingly, the examiner makes no attempt to define the phrase "in a related

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application"." . Additional remarks of similar nature are peppered throughout the response by applicant including Page 23 last sentence second paragraph. Such behavior does not fall into the realm of proper decorum or courtesy on behalf of the applicant and may result in the non-entry of amendments submitted therewith (MPEP 714.25). Applicant is further reminded that in this case such statements are entered they will be permanently attached to this application and will continue to reflect on their application and/or any future patent for the remainder of it's life.

The applicant is apparently unclear in what manner the Mook reference was relied upon in the previous rejection. For clarity sake and as previously presented Mook teaches the use of circumambulatory stripe(s) around a golf ball for a visual indication of ball spin, which was in turn applied in place of the previously presented dots of Gobush. Juxtapose to the previously presented piece of art of Balmat that taught a sole ball alignment system the system of Mook teaches a flight monitoring system wherein the flight characteristics of the golf ball are monitored through the use of visual indicia. Hence the substitution of one set of visual indicia (the spots of Gobush) for another set of visual indicia (the stripes of Mook) wherein both sets of visual indicia were originally utilized for the communication of ball flight characteristics through visual means was previously deemed and continues to be held within the realm of obviousness to one of ordinary skill in the art.

The applicant is reminded that the related art of Mook does present a golf ball flight monitoring system through the use of circumambulatory stripes and is relied upon solely for it's demonstration of circumambulatory stripes in place of the dots of Gobush.

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The Mook reference was further supplied to the applicant's representative at the time of the interview on May 26th, 2004 as a possible replacement for the Balmat reference premised on the distinct functional use of the indicia set forth in the preceding sentence. Arguments are directed to the determination of ball behavior characteristics for which Mook is not relied upon for teaching and hence are moot.

In response to applicant's argument that Mook is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Mook is noted for being related to the determination and communication of ball flight characteristics of a golf ball.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

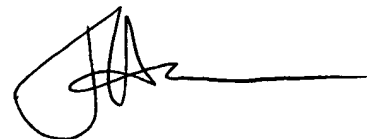
Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Mosser whose telephone number is (571)-272-4451. The examiner can normally be reached on 8:30-4:30 Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris H Banks can be reached on (571) 272-4419. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

A handwritten signature in black ink, appearing to be 'JH' followed by a long horizontal stroke.

JESSICA HARRISON
PRIMARY EXAMINER